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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of:	)	Confirmation No.: 5951
	)	
Mark Gray	)	Examiner: Ramsey Refai
	)	
Serial No.: 09/835,059	)	Group Art Unit No.: 2152
	)	
Filed on: April 13, 2001	)	
	)	

For: METHOD AND APPARATUS FOR DETERMINING INTERCONNECTIONS OF NETWORK DEVICES

Mail Stop Appeal Brief - Patents
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P. O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Sir:

This Appeal Brief is submitted in support of the Notice of Appeal filed on October 18, 2006.

TABLE OF CONTENTS

I. REAL PARTY IN INTEREST

Sun Microsystems, Inc. is the real party in interest.

II. RELATED APPEALS AND INTERFERENCES

Appellants are unaware of any related appeals or interferences.

III. STATUS OF CLAIMS

Claims 1-8, 11-16, 20-29, 31-40, 42-43, 46-51, and 54-68 are pending in this application and were finally rejected in the Final Office Action mailed on July 18, 2006. Claims 9-10, 17-19, 30, 41, 44-45, and 52-53 were canceled during prosecution.

Claims 1-8, 11-16, 20-29, 31-40, 42-43, 46-51, and 54-68 are the subject of this appeal.

IV. STATUS OF AMENDMENTS

No amendments were filed after the Final Office Action mailed on July 18, 2006.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The present application contains independent Claims 1, 6, 12, 16, 20, 27-29, 31, and 38-40. Claims 1, 6, 12, and 16 are method claims. Claims 20 and 27-29 are computer readable medium claims, with Claim 20 being a computer readable medium counterpart of method Claim 1, Claim 27 being a computer readable medium counterpart of method Claim 6, Claim 28 being a computer readable medium counterpart of method Claim 12, and Claim 29 being a computer readable medium counterpart of method Claim 16. Claims 31 and 38-40 are apparatus claims, with Claim 31 being an apparatus counterpart of method Claim 1, Claim 38 being an apparatus counterpart of method Claim 6, Claim 39 being an apparatus counterpart of method Claim 12, and Claim 40 being an apparatus counterpart of method Claim 16.

Claims 1, 6, 12, 16, 20, 27-29, 31, and 38-40 are generally directly to an approach for determining whether a connection exists among a plurality of network devices. It is often desirable to know the details of the interconnections among devices in a network in order to create, modify, operate, and maintain such a network. (Application, page 3, lines 1-2.) However, as networks become increasingly large and complex, it becomes increasingly difficult for a technician to physically trace all of the connections to ensure that they have been established correctly. (Application, page 4, lines 1-2.) One example of such a large and complex network is a "server farm," in which servers and other network devices are made available for use by a variety of clients or companies. (Application, page 3, lines 8-9.)

Prior to the invention, one approach for determining the interconnections among the devices of a network was to establish a rigid specification or definition that prescribes how each network device is connected to other network devices. For example, for a network device "A," such a definition might specify that network device "A" is to be connected via a connection "B" to a port "C" on a network device "D". (Application, page 4, lines 3-7.)

Once a type of rigid definition is established, the network may be constructed according to detailed specifications of how each network device is to be connected to the other network devices. The rigid definition approach may be effective if the number of network devices is small because the limited number of interconnections makes it feasible to manually verify each connection between the network devices and correct any problems or mistakes. (Application, page 4, lines 8-13.)

However, as the number of network devices, the types of network devices, the number of connections and the types of connections all increase, the effectiveness of the rigid definitional approach decreases. In particular, the more network devices and connections there are, the more difficult it is to test each connection and identify those connections that are

misconnected or otherwise have problems that are to be resolved. (Application, page 4, lines 14-18.)

Furthermore, because of the inevitability of human error, merely having personnel repeatedly check the work done against the rigid network definition is often not effective in identifying a sufficient number of the problems with the network configuration. Inevitably some problems will escape even the most careful inspection by qualified personnel. (Application, page 5, lines 3-7.)

Each of Claims 1, 6, 12, 16, 20, 27-29, 31, and 38-40 provides a technique that may reduce the opportunity for human error in determining the interconnections among network devices.

A. CLAIMS 1, 20, AND 31

Claim 1 features determining logical interconnections among network devices by changing the power state of one device and identifying an alteration at a second device in response to the change of power state of the first device. By changing the power state of one device to identify alterations at other devices as in the approach of Claim 1, existing physical connections can be determined and information representing the corresponding logical connection created and stored.

For example, the power state of a device is changed, such as by causing a CPU that is initially unpowered (or "off") to have power supplied to the CPU (e.g., the CPU is turned on). (Application, page 10, lines 20-25; FIG. 2, block 220.) Other network devices are monitored to identify alterations or changes in response to changing the power state of the initial device, which would indicate that any such devices experiencing an alteration or change are connected to the device that experienced change in the power state. (Application, page 11, lines 11-17;

FIG. 2, block 230.) As a specific example, a control device can identify an alteration at a switch in response to turning a CPU "on," such as the raising of a trap on the port of the switch, which would indicate that the CPU and switch are connected through the port on which the trap is raised. (Application, page 11, lines 18-23.)

The results of changing the power state of the initial device and identifying changes in any other devices in the network are created and stored, and then the results can be compared (manually or automatically) to other information, such as a database that is supposed to contain information about the connections in the network, to verify that testing results match those in the database. (Application, page 12, lines 7-16; FIG. 2, blocks 240, 250.) If there are any errors between the test results and the expected results based on information from the database, a technician can investigate and resolve the error to determine whether there is an improper connection between the devices or whether the database has incorrect information. (Application, page 13, lines 6-25; FIG. 2, blocks 260, 270.)

Independent Claim 20 is a computer-readable medium counterpart of method Claim 1, and includes limitations analogous to the limitations of Claim 1. Thus, the elements of Claim 20 are disclosed in at least the same sections of the Specification and Drawings as those cited above in connection with Claim 1. In addition, the elements of Claim 20 are supported by the hardware and computer-readable media description provided on page 48, line 17 through page 51, line 20.

Independent Claim 31 is an apparatus counterpart of method Claim 1, and includes limitations analogous to the limitations of Claim 1. Thus, the elements of Claim 31 are disclosed in at least the same sections of the Specification and Drawings as those cited above in connection with Claim 1. In addition, the elements of Claim 31 are supported by the hardware description provided on page 48, line 17 through page 51, line 20. Furthermore, the "means for

changing the power state of the first network device" may be the power controller 120 of FIG. 1 (see also Application, page 11, lines 1-4); the "means for identifying whether an alteration occurs at a second network device in response to changing the power state of the first network device" may be the control device 110 of FIG. 1 (see also Application, page 11, lines 18-23); and the "means for creating and storing first information" may be the control device 110 and database 112 of FIG. 1 (see also Application, page 12, lines 7-10).

Claims 6, 12, 16, 20, 27-29, 31, and 38-40 contain features that are either the same as or similar to those described above with respect to Claim 1. In particular, Claims 20 and 31 both feature "changing the power state of the first network device from either (a) an unpowered state to a powered state or (b) from the powered state to the unpowered state," which is the same as in Claim 1. Similarly, Claims 6, 27, and 38 feature "activating a particular network device of said set of specified network devices by supplying power to the particular network device that previously was not supplied with power," which is a similar feature to that in Claim 1. Similarly, Claims 12, 28, and 39 feature "sending a signal from a control device that results in a change in a power state of a first network device in response to the signal, wherein the power state changes from either powered to unpowered or from unpowered to powered," which is a similar feature to that in Claim 1. Finally, Claims 16, 29, and 40 feature "power cycling a first network device from either "off" to "on" or from "on" to "off," which is a similar feature as that in Claim 1.

B. CLAIMS 6, 27, AND 38

Claim 6 includes additional features not found within Claim 1. For example, the first step of Claim 6 is "(1) establishing connections among a plurality of devices based upon a set of rules." Specifically, in one embodiment described in the application with reference to

FIG. 2, a set of network wiring guidelines that include a set of general rules or instructions for connecting network devices are used to wire a network. (Application, page 10, lines 5-11; page 15, lines 14-22; FIG. 2, block 210.) Also, Claims 6, 27, and 38 feature "(5) repeating steps (2), (3), and (4) for each of said set of specified network devices," and therefore, the steps of "activating," "identifying," and "creating and storing" are performed at least two times. (Application, page 14, lines 11-16; FIG. 2, block 210.)

Independent Claim 27 is a computer-readable medium counterpart of method Claim 6, and includes limitations analogous to the limitations of Claim 6. Thus, the elements of Claim 27 are disclosed in at least the same sections of the Specification and Drawings as those cited above in connection with Claim 6. In addition, the elements of Claim 27 are supported by the hardware and computer-readable media description provided on page 48, line 17 through page 51, line 20.

Independent Claim 38 is an apparatus counterpart of method Claim 6, and includes limitations analogous to the limitations of Claim 6. Thus, the elements of Claim 38 are disclosed in at least the same sections of the Specification and Drawings as those cited above in connection with Claim 6. In addition, the elements of Claim 38 are supported by the hardware description provided on page 48, line 17 through page 51, line 20. Furthermore, the "means for establishing connections among a plurality of network devices based upon a set of rules" may be the CPU 130 and the switch 140 of FIG. 1 or a technician (see also Application, page 9, lines 17-22; page 15, lines 14-22); the "means for activating a particular network device...by supplying power to the particular network device that was not previously supplied with power" may be the power controller 120 of FIG. 1 (see also Application, page 11, lines 1-4; page 25, lines 8-9; page 33, lines 11-13); the "means for identifying whether, in response to activating the particular network device, a change occurs at one or more network devices" may be the

control device 110 of FIG. 1 (see also Application, page 11, lines 18-23); and the "means for creating and storing first information" may be the control device 110 and database 112 of FIG. 1 (see also Application, page 12, lines 7-10).

C. CLAIMS 12, 28, AND 39

Claim 12 includes features that are not included in Claim 1. For example, Claim 12 features "sending a signal from a control device that results in a change in a power state of a first network device." (Application, page 23, lines 3-6 and 10-12.) Therefore, in Claim 12, there are three devices: the control device, the first network device, and the second network device. It is the control device that causes the change in the power state of the first network device as a result of sending the signal.

Independent Claim 28 is a computer-readable medium counterpart of method Claim 12, and includes limitations analogous to the limitations of Claim 12. Thus, the elements of Claim 28 are disclosed in at least the same sections of the Specification and Drawings as those cited above in connection with Claim 12. In addition, the elements of Claim 28 are supported by the hardware and computer-readable media description provided on page 48, line 17 through page 51, line 20.

Independent Claim 39 is an apparatus counterpart of method Claim 12, and includes limitations analogous to the limitations of Claim 12. Thus, the elements of Claim 39 are disclosed in at least the same sections of the Specification and Drawings as those cited above in connection with Claim 12. In addition, the elements of Claim 39 are supported by the hardware description provided on page 48, line 17 through page 51, line 20. Furthermore, the "means for sending a signal from a control device that results in a change in a power state of a first network device" may be the power controller 120 of FIG. 1 (see also Application, page 11, lines 1-4);

the "means for determining whether the first network device is connected to a second network device by identifying an alteration at the second network device in response to changing the power state of the first network device" may be the control device 110 of FIG. 1 (see also Application, page 11, lines 18-23); and the "means for creating and storing information" may be the control device 110 and database 112 of FIG. 1 (see also Application, page 12, lines 7-10).

D. CLAIMS 16, 29, AND 40

According to Claim 16 a first network device is power cycled from either "off" to "on" or from "on" to "off." (Application, page 10, lines 20-25.) Then, as a result of power cycling the first network device, it is identified whether a suspected link of the first network device and a second network device becomes active. (Application, page 11, line 24 – page 12, line 1; page 25, line 15 – page 26, line 2.) When the suspected link becomes active, information is created and stored that represents that the first and second network device are connected. (Application, page 12, lines 7-16; page 6, lines 9-11; FIG. 2, block 240).

Independent Claim 29 is a computer-readable medium counterpart of method Claim 16, and includes limitations analogous to the limitations of Claim 16. Thus, the elements of Claim 29 are disclosed in at least the same sections of the Specification and Drawings as those cited above in connection with Claim 16. In addition, the elements of Claim 29 are supported by the hardware and computer-readable media description provided on page 48, line 17 through page 51, line 20.

Independent Claim 40 is an apparatus counterpart of method Claim 16, and includes limitations analogous to the limitations of Claim 16. Thus, the elements of Claim 40 are disclosed in at least the same sections of the Specification and Drawings as those cited above in

connection with Claim 16. In addition, the elements of Claim 40 are supported by the hardware description provided on page 48, line 17 through page 51, line 20. Furthermore, the "means for power cycling a first network device from either 'off' to 'on' or from 'on' to 'off'" may be the power controller 120 of FIG. 1 (see also Application, page 11, lines 1-4); the "means for identifying whether a suspected link of the first network device and a second network device becomes active" may be the control device 110 of FIG. 1 (see also Application, page 11, line 18 – page 12, line 1); and the "means for creating and storing information" may be the control device 110 and database 112 of FIG. 1 (see also Application, page 12, lines 7-10).

E. CLAIMS 3, 22, AND 33

Claim 3 is a method claim that depends on Claim 1 and additionally recites that the second network device is a terminal server and that identifying whether the alteration occurs at the terminal server further comprises determining whether a state of a port of the terminal server is changed from dead to active in response to changing the power state of the first network device. (Application, page 25, line 21 – page 26, line 2; page 33, lines 11-19 and FIG. 3).

Claim 22 is a computer-readable medium counterpart of method Claim 3, and includes limitations analogous to the limitations of Claim 3. Thus, the elements of Claim 22 are disclosed in at least the same sections of the Specification and Drawings as those cited above in connection with Claim 3. In addition, the elements of Claim 22 are supported by the hardware and computer-readable media description provided on page 48, line 17 through page 51, line 20.

Claim 33 is an apparatus counterpart of method Claim 3, and includes limitations analogous to the limitations of Claim 3. Thus, the elements of Claim 33 are disclosed in at

least the same sections of the Specification and Drawings as those cited above in connection with Claim 3. In addition, the elements of Claim 33 are supported by the hardware description provided on page 48, line 17 through page 51, line 20. Furthermore, the "means for determining whether a state of a port of the terminal server is changed" may be performed by a control device 110 of FIG. 1 (see also Application, page 33, lines 11-19).

F. CLAIMS 13, 47, AND 55

Claim 13 is a method claim that depends on Claim 12 and additionally recites that the first network device is connected to a power controller (Application, page 9, lines 17-22; FIG. 1) and that the signal from the control device is sent to the power controller that changes the power state of the first network device from unpowered to powered. (Application, page 11, lines 1-4 and FIG. 1).

Claim 47 is a computer-readable medium counterpart of method Claim 13, and includes limitations analogous to the limitations of Claim 13. Thus, the elements of Claim 47 are disclosed in at least the same sections of the Specification and Drawings as those cited above in connection with Claim 13. In addition, the elements of Claim 47 are supported by the hardware and computer-readable media description provided on page 48, line 17 through page 51, line 20.

Claim 55 is an apparatus counterpart of method Claim 13, and includes limitations analogous to the limitations of Claim 13. Thus, the elements of Claim 55 are disclosed in at least the same sections of the Specification and Drawings as those cited above in connection with Claim 13. In addition, the elements of Claim 55 are supported by the hardware description provided on page 48, line 17 through page 51, line 20.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-3, 5-8, 12, 14, 20-24, 27, 31-35, 38, 42-43, 48, 50-51, and 56 have been rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over U.S. Patent Number 6,728,670 issued to Schenkel et al. ("*Schenkel*") in view of U.S. Patent Number 6,516,345 issued to Kracht ("*Kracht*").

Claims 4, 11, 15, 46, 49, 54, and 57 have been rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over *Schenkel* in view of *Kracht* and in further view of U.S. Patent Number 6,628,623 issued to Noy ("*Noy*").

Claims 13, 25-26, 28, 36-37, 39, 47, 55, and 58-59 have been rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over *Schenkel* in view of *Kracht* and in further view of U.S. Patent Number 5,347,167 issued to Singh ("*Singh*").

Claims 16, 29, and 40 have been rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over *Schenkel* in view of *Kracht* and in further view of U.S. Patent Number 6,507,273 issued to Chang et al. ("*Chang*").

Claims 60-68 have been rejected under 35 U.S.C. § 112(1) as allegedly not being supported in the Specification.

VII. ARGUMENTS

It is respectfully submitted that the Examiner has erred in rejecting Claims 1-8, 11-16, 20-29, 31-40, 42-43, 46-51, and 54-68 under 35 U.S.C. §103(a).

A. CLAIM 1

Claim 1 features:

"A method for determining one or more logical interconnections among a plurality of network devices that are interconnected in a network in an indefinite relationship, wherein a power state is associated with a first network device, the method comprising the computer-implemented steps of:

changing the power state of the first network device **from either (a) an *unpowered* state to a *powered* state or (b) from the *powered* state to the *unpowered* state**;

identifying whether an <u>alteration</u> occurs *at a second network* device in response to changing the power state *of the first network device*; and

when the alteration occurs at the second network device, creating and storing first information representing a logical connection of the first network device to the second network device." (Emphasis added.)

1. *The Final Office Action's Citations From* Schenkel

The Final Office Action states that *Schenkel* discloses "changing the power state of the first network device from either (a) an unpowered state to a powered state or (b) from the powered state to the unpowered state; identifying whether an alteration occurs at a second network device in response to changing the power state of the first network device (column 2, lines 20-40; shows a signal sent from a source device to a destination device, Figure 2, and column 3, lines 18-32.)" This is incorrect.

The first cited portion from Column 2 of *Schenkel* describes measuring the traffic output of one device (e.g., the sequence of bursts of packets formed of orthogonal signals), measuring the traffic input of another device, and determining connections between devices or a sequence

of connections between devices based on whether the measured traffic between the two devices is statistically the same or not. (Col. 2, lines 20-40.) The last cited portion from Column 3 of *Schenkel* describe a series of four devices, A through D, connected in series in which the output of one device is the input to the next device, as illustrated in Figure 2. (Col. 3, lines 18-32; Figure 2.) Thus, the cited portions of *Schenkel* describe sending traffic from the source device to a destination device and comparing the traffic sent from the source device to the destination device. If the traffic is statistically the same, *Schenkel's* approach is to conclude that the source device is connected to the destination device, otherwise if the traffic is not statistically the same, the source device is not connected to the destination device.

The "Response to Arguments" section of the Final Office Action also cites additional portions of *Schenkel* – namely the Abstract, col. 2, lines 11-12; col. 1, line 65 – col. 2, line2; col. 22, line 60 – col. 23, line 15; and col. 19, lines 10-67. However, the cited portion of Column 19 of *Schenkel* describes and defines an "idle" device as a device in which the "traffic in or out of it is insignificant...Idleness can be expressed as having a mean level of traffic below some cutoff to be chosen by the operator." (Col. 19, lines 34-36 and 41-42.) Thus, because *Schenkel's* device is receiving traffic, the device must be powered, and when receiving more traffic so that the device is no longer idle, the device remains powered.

As described below, none of these portions of *Schenkel* describe either "**changing the power state** of the first network device from either (a) an ***unpowered state*** to a ***powered state*** or (b) from the ***powered state*** to the ***unpowered state***" or "identifying whether an alteration occurs at a second network device in response to changing the power state of the first network device" because (1) the sending of packets from a source device to a destination device in *Schenkel* does not change the power state of the destination device, and (2) even if it did, any

alteration occurs at the destination device, not the source device. These two arguments are fully outlined in the following sections.

The Applicant notes that the Examiner explained during the Interview conducted on December 15, 2005 that a cited reference must be read as a whole, and therefore that the Applicant should not solely focus on the portions cited from *Schenkel.* The Applicant has reviewed not just the cited portions of *Schenkel*, but the entirety of *Schenkel*, yet the Applicant has failed to find anything that supports the rejections in the Final Office Action.

Furthermore, the Applicant notes that according to the MPEP, in an Office Action "the particular part relied on must be designated as nearly as practicable ... The pertinence of each reference, if not apparent, must be clearly explained ..." (MPEP §707, citing 37 C.F.R. §1.104(c)(2)), and "the particular figure(s) of the drawings(s), and/or page(s) or paragraph(s) of the reference(s), and/or any relevant comments briefly stated should be included." (MPEP §707). Thus, the Applicant respectfully requests that if the Examiner believes other portions of *Schenkel* not cited in the Final Office Action disclose the features of the claims that the Applicant has been unable to locate, that the Examiner provide citations to those portions of *Schenkel* along with an explanation as to why the Examiner believes the disclosure in those portions of *Schenkel* disclose the features of the claims.

2. Schenkel *Fails to Show Changing the* ***Power State*** *of a* ***First*** *Network Device and Identifying an* ***Alteration*** *at a* ***Second*** *Network Device*

As discussed during the Interview with the Examiner, the Applicant is unclear about which portions of *Schenkel* are being relied upon as showing the following features of Claim 1: (a) "the first network device", (b) "the second network device", (c) "the power state of the first network device," (d) "the alteration occurs at the second network device." The Applicant's

attempts at matching the devices and discussion of *Schenkel* to the first two features of Claim 1 (e.g., the first and second network devices) results in inconsistencies with two other features of Claim 1 (e.g., the power state and the alteration).

It initially appears that the Final Office Action is equating the "destination device" and "source device" of *Schenkel* to the "first network device" and "second network device," respectively (e.g., items (a) and (b) above), of Claim 1 because the Final Office Action says that the "signal bursts are sent to the destination device until no longer idle, which is a change of the power state." Assuming for the moment that sending the signal bursts is a change of power state, this matching of *Schenkel's* devices to those of Claim 1 is consistent with feature (c) above because the first network device (e.g., the destination device) has its power state being changed. However, this is inconsistent with feature (d) above of "identifying whether an alteration occurs at the second network device" because that would mean an alteration occurs at the source device in *Schenkel* that sends the signal bursts (or some other device not described).

Furthermore, in *Schenkel's* approach, the link between the source device and destination device is determined by a statistical comparison of the traffic at the destination device and the source device. Thus, a change that occurs, if a change does occur at all, is at the destination device, not the source device, which is the same device at which the power state changes. Yet in the approach of Claim 1, in response to the change in the power state of the first network device, an alteration occurs at the second network device. Thus, the Applicant respectfully submits that based on this first application of the elements disclosed in *Schenkel* to the features of Claim 1, *Schenkel* fails to disclose "identifying whether an alteration occurs at the second network device in response to changing the power state of the first network device."

Alternatively, if the source and destination device are reversed such that the "first network device" of Claim 1 is the "source device" of *Schenkel* and the "second network device"

of Claim 1 is the "destination device" in *Schenkel*, then that would be consistent with feature (d) above in that an alteration is identified at the destination device (e.g., the change, if any, in the packets that are sent to the destination device). However, this is inconsistent with feature (c) above of "the power state of the first network device" because that would mean that the power state of the source device is changed. However, in *Schenkel's* approach, it is the power state of the destination device that is allegedly changed by sending the signal burst of packets, not the source device. Thus, the Applicant respectfully submits that based on this second application of the elements disclosed in *Schenkel* to the features of Claim 1, *Schenkel* fails to disclose "changing the power state of the first network device from either (a) an unpowered state to a powered state or (b) from the powered state to the unpowered state."

To summarize, regardless of how the source and destination devices of *Schenkel* are matched against the first and second network devices of Claim 1, *Schenkel* always has **both** the change in power state **and** the alteration at the destination device, yet in Claim 1, the change in power state and the alteration occur at ***different*** network devices, namely the first and second network devices.

3. Schenkel *Identifies Connected Devices When the Traffic is the Same, Whereas Claim 1 Identifies Connected Devices When an Alteration Occurs*

The link between the source and destination devices in *Schenkel* is only determined if the traffic is statistically the same, and if the traffic is not statistically the same, then there is no link between the source and destination devices. But when the traffic is the same, then **there is no alteration** (or difference) in the traffic between the two devices in *Schenkel*. Only if the traffic is ***not*** **statistically the same** is there not a link determined between the source and

destination devices. In other words, *Schenkel's* approach only identifies that two devices are connected if there is **no** difference in the traffic, but if the traffic *is different*, then there is **no** link.

Yet the approach of Claim 1 is the opposite of that of *Schenkel*. Specially, Claim 1 expressly features that the logical connection is created and stored when there is a difference, i.e., when an alteration ***does occur*** at the second device. But if this situation occurs with *Schenkel's* approach, the opposite conclusion is reached, namely that the source and destination devices are ***not*** connected.

4. Schenkel's *"**Idle**" Device is Not an "**Unpowered**" Device*

Contrary to the assertions of the Final Office Action, the mere sending of a signal comprised of a sequence of packet bursts is not the same as "changing the power state of the first network device **from either (a) an *unpowered* state to a *powered* state or (b) from the *powered* state to the *unpowered* state**" as in Claim 1. In *Schenkel*, the sending of packet bursts does not change the power state of the sending device, the receiving device, or any other device, which is a fundamental difference between *Schenkel* and the approach of Claim 1. In fact, some changes to the power state of a sending device, such as from powered to unpowered, would render the approach of *Schenkel* inoperative because the sending device would be incapable of sending the signal. Even other power state changes, such as by turning a device from unpowered to powered, would not result in sending the sequence of bursts of packets as disclosed in *Schenkel*.

In the "Response to Arguments" section, the Final Office Action states that the "idled device in Schenkel **can be taken as being an unpowered device**, since the idled device **does not have enough traffic activity to be considered an active device** on the network. The

device is then stimulated using signal burst to an active state to allow the device's connections to be identified directly" (page 3, Argument B; emphasis added).

The Applicant respectfully disagrees that sending signal bursts to an idle device until the device is no longer idle is a change of the power state, based on the definition of an "idle" device and "idleness" as provided in *Schenkel*. Specifically, *Schenkel* states:

> Stimulation of idle devices in a network allow their connections to be identified directly. The present invention can determine that a device is **<u>idle</u>** ***because the volume of traffic in or out of it is*** **<u>insignificant</u>**. It can then instruct a signal burst to be sent to or across this device in order to generate ***enough traffic*** to accurately locate it in the network...***<u>Idleness</u>*** can be expressed as having ***a mean level of traffic below some*** **<u>cutoff</u>** to be chosen by the operator. A convenient value of this cutoff is 5 units of activity per sampling period as this provides the classic chi-squared formulation with sufficient data for its basic assumptions to be reasonable accurate. (Col. 19, lines 33-46; emphasis added.)

Therefore, ***Schenkel*** **clearly defines an idle device as a device for which the traffic is not zero, but** ***merely <u>insignificant</u>***, meaning that the traffic through the device is below a cutoff value does not allow for accurate identification of the network connections. The use of a signal burst to increase the traffic for an idle device so that the device can be located indicates that the device is already in a "powered" power state (e.g., the device is "on"). The sending of the signal burst does not change the power state from unpowered to powered or from off to on (or vice versa). Rather, the signal burst supplies sufficient traffic so that the statistical comparison of the traffic sent to the traffic received is meaningful. Because the basis for *Schenkel's* connection identification approach is a statistical method, sufficient traffic must be used in order to make a statistically meaningful comparison between the traffic sent and the traffic received, and therefore conclude that the sending device and the receiving device are connected.

Thus, **an "*idle*" device as defined in *Schenkel* is a device that is in the "*powered*" power state (or "on"),** as opposed to an "unpowered" power state (or "off"). Changing the status of the device in *Schenkel* from "idle" to "not idle" merely means that there is sufficient

traffic through or to the device for a statistically meaningful comparison of traffic sent versus traffic received, but the power state of the device remains unchanged in the powered or "on" power state. **If the initial power state of an idle device were unpowered or off, then the device would be unable to receive the signal burst in *Schenkel*'s approach.**

In contrast to *Schenkel*, Claim 1 features "changing the power state of the first network device **from either (a) an *unpowered* state to a *powered* state or (b) from the *powered* state to the *unpowered* state**." Neither the cited portions of *Schenkel* or any other portion of *Schenkel* discloses anything about changing the power state from "an unpowered state to a powered state" as featured in Claim 1, because *Schenkel's* technique of changing the status of an "idle" device, that is already powered but merely has too little traffic to accurately use *Schenkel's* statistics-based connection identification approach, by sending a signal burst merely increases the traffic to the device still leaves the device in a powered power state. Furthermore, there is nothing in either the cited portions of *Schenkel* or any other portion of *Schenkel* about changing the power state from "the powered state to the unpowered state," as featured in Claim 1. Indeed, *Schenkel* does not even mention the terms "power" or "state."

5. *The Final Office Action Improperly Relies on Reading into Claim 1 a Definition of a Term Not Used in Claim 1*

During the Interview and in the Response to Arguments section of the Final Office Action, the Examiner explained that the Examiner was relying upon the definition of "unpowered" from page 10 the specification. However, the definition provided therein is **not** of the term "unpowered" but rather of the term "power cycling." Specifically, the specification states:

> Next, the power state of a device is changed, as indicated in block 220. For example, in FIG. 1, the initial power state of CPU 130 may be unpowered (or

> "off"), but then power is supplied to CPU 130 (e.g.,. CPU 130 is turned on). The changing of a power state may be referred to as "**power cycling**." However, **that term** is used herein in a broader sense to also include turning off a network device or even to change the power state of a network device from standby to active. (Application, page 10, lines 20-25; emphasis added.)

Note that in this portion of the Application, the term "power cycling" encompasses three types of power state changes: (1) from unpowered to powered, such as going from not being supplied with power to being supplied with power; (2) from "off" to "on;", and (3) from standby to active. This is consistent with other portions of the Application. For example, the Application describes "power cycling" as follows:

> The "**power cycling**" of a network device means that the power state of the network device is changed or altered from what the power state was immediately prior to the power cycling action. The power state of a network device before **power cycling** may simply be ***"off," unpowered, or inactive***, or ***"on," powered, or active***. The power state of a network device may also be any other power characteristic of the network device. For example, the power state may be a form of power conservation mode, such as a ***power saving or "sleep" state***, in which only minimal power is used by the network device. (Application, page 22, line 20 to page 23, line 2; emphasis added.)

The only place in the claims where the term "power cycling" is used is in Claims 16, 29, and 40 in which the term is expressly limited to one type of change of power state, namely "power cycling a first network device from either 'off' to 'on' or from 'on' to 'off'." The term "power cycling" is not used in Claim 1 or in any of the other independent claims. Rather, Claim 1 expressly features "changing the power state of the first network device," and similar to Claims 16, 29, and 40, the type of change of power state is expressly limited by the words of Claim 1 to "from either (a) an unpowered state to a powered state or (b) from the powered state to the unpowered state." Thus, Claim 1 expressly excludes changing the power state from standby to active.

Furthermore, the Applicant respectfully disagrees with the Final Office Action's attempt to read into Claim 1 a definition of a term not used in Claim 1. If the Applicant wanted Claim 1

to recite the term "power cycling," the Applicant would have included the term in Claim 1 (just as the Applicant has included that term in Claim 16). Yet by expressly not using the term "power cycling" in Claim 1, the Applicant has expressly differentiated Claim 1 from the definition of the term "power cycling." In addition, the Applicant notes that while the specification defines the term "power cycling" as changing the power state of a device, the specification has not defined the concept of changing the power state in terms of the term "power cycling," and therefore the Applicant respectfully submits that it is not proper for the Final Office Action to do so.

The only way that the Applicant has been able to reconcile the Final Office Action's reliance on the definition of "power cycling" from page 10 of the Application would be to equate the term "standby" to "unpowered." Yet the two terms are clearly distinguished in the Application, as evidenced by the two passages provide above. Furthermore, on its face, the term "standby" would be understood by one of ordinary skill in the art to mean that a device in "standby" has power, and thus a change in power state from "standby" to "active" leaves the device in a "powered" power state.

While *Schenkel* discloses an approach for determining a network topology by sending a signal consisting of a sequence of bursts of packets and measuring such packet traffic at the output of a sending device and the input of a receiving device, including the stimulation of an "idle" device for which the traffic is too low to make an accurate statistical comparison, this does not relate to "changing the power state of the first network device **from either (a) an *unpowered* state to a *powered* state or (b) from the *powered* state to the *unpowered* state**" as featured in Claim 1 of the present application.

6. Conclusion of Discussion of Claim 1

Because *Schenkel* fails to disclose, teach, suggest, or in any way render obvious either "changing the power state of the first network device from either (a) an unpowered state to a powered state or (b) from the powered state to the unpowered state" or "identifying whether an alteration occurs at the second network device in response to changing the power state of the first network device," the Applicant respectfully submits that, for at least the reasons stated above, Claim 1 is allowable over *Schenkel* and is in condition for allowance.

B. CLAIMS 6, 12, 16, 20, 27-29, 31, AND 38-40

1. Introduction

Claims 6, 12, 16, 20, 27-29, 31, and 38-40 contain features that are either the same as or similar to those described above with respect to Claim 1. In particular, Claims 20 and 31 both feature "changing the power state of the first network device **from either (a) an *unpowered* state to a *powered* state or (b) from the *powered* state to the *unpowered* state**," which is the same as in Claim 1. Similarly, Claims 6, 27, and 38 feature "activating a particular network device of said set of specified network devices **by *supplying power* to the particular network device that *previously was not supplied with power***," which is a similar feature to that in Claim 1. Similarly, Claims 12, 28, and 39 feature "sending a signal from a control device that results in a change in a power state of a first network device in response to the signal, **wherein the power state changes from either *powered* to *unpowered* or from *unpowered* to *powered***," which is a similar feature to that in Claim 1. Finally, Claims 16, 29, and 40 feature "power cycling a first network device **from either "*off*" to "*on*" or from "*on*" to "*off*,**" which is a similar feature as that in Claim 1.

Therefore, based on at least the reasons stated above with respect to Claim 1, the Applicant respectfully submits that Claims 6, 12, 16, 20, 27-29, 31, and 38-40 are allowable over the art of record and are in condition for allowance.

2. *Additional Arguments Regarding Claims 6, 27, and 38*

Regarding Claims 6, 27, and 38, the Final Office Action states that Claim 6 "contains similar limitations as claim 1; therefore, it is rejected under the same rationale." However, Claims 6, 27, and 38 **include numerous additional features <u>not found</u> within Claim 1**. For example, the first step of Claims 6, 27, and 38 is "(1) establishing connections among a plurality of devices based upon a set of rules," yet Claim 1 lacks anything similar to this step of establishing connections, little less that those connections are established based upon a set of rules.

Also, Claim 6 features "(5) repeating steps (2), (3), and (4) for each of said set of specified network devices," and therefore, the steps of "activating," "identifying," and "creating and storing" are performed at least two times. Yet in Claim 1, the steps of "changing," "identifying," and "creating and storing" are performed for just a first network device and a second network device.

The Applicant has been unable to identify any features of the cited art that correspond to these additional features of Claims 6, 27, and 38. Therefore, the Applicant respectfully submits that Claims 6, 27, and 38 are allowable over the cited art and are in condition for allowance.

3. *Additional Arguments Regarding Claims 12, 28, and 39*

Regarding Claims 12, 28, and 39, the Final Office Action states that Claim 12 "contain similar limitations as claim 1 above, therefore are rejected under the same rationale." However, Claims 12, 28, and 39 **include numerous features that are <u>not found</u> in Claim 1**. For

example, Claims 12, 28, and 39 feature "sending a signal from a control device that results in a change in a power state of a first network device," yet Claim 1 lacks anything similar to a control device sending a signal.

Also, in Claims 12, 28, and 39, there are three devices: the control device, the first network device, and the second network device. It is the control device that causes the change in the power state of the first network device as a result of sending the signal, yet in Claim 1, there is no feature about how the power state of the first network device is changed.

While *Schenkel* describes the sending of a burst of packets, which the Final Office Action may be relying upon as corresponding to the signal sent in Claims 12, 28, and 39, the signals in *Schenkel* are sent from the source device to the destination device to determine if the two devices are connected, and thus *Schenkel* only involves two devices and the signal that allegedly causes the change in power state is sent from one of the devices between which there may be a connection. However, in Claims 12, 28, and 39, there are **three devices**, and the signal from the control device causes the power state to change at the first network device, and then an alteration is identified at a second network device to determine if the first and second network devices are connected. Thus, in the approach of Claim 12, 28, and 39, the signal is ***not*** sent from one of the two network devices that may be interconnected, which is different than in *Schenkel*.

Furthermore, in order for the control device to send the signal to the first network device, there must be a known connection between the control device and the first network device, which is not the case in *Schenkel* in which the source device sends the burst of packets to the destination device in order to determine if the source device is connected to the destination device. Therefore, the Applicant respectfully submits that Claims 12, 28, and 39 are allowable over the cited art and are in condition for allowance.

4. *Additional Arguments Regarding Claims 16, 29, and 40*

Regarding Claims 16, 29, and 40, each features "power cycling a first network device from either "off" to "on" or from "on" to "off"." The Final Office action rejects the "power cycling" portion of this step on *Schenkel* and the off to on/on to off portion based on *Chang*. The Applicant does not presently dispute that *Chang* shows a remotely controlled power switch.

However, the Applicant fails to see how *Chang* can be incorporated into *Schenkel's* approach that is based on sending signal bursts and comparing network traffic between a source and destination device. If the device were turned from "on" to "off", then no signal bursts could be sent or received. If the device were turned from "off" to "on", then there is nothing about how that type of action would result in the signal bursts being sent as described in *Schenkel* and the subsequent statistical comparison of the network traffic to indicate whether a connection exists or not as taught by *Schenkel*. Rather, in the approach of *Schenkel*, some other positive action is required to initial the bursts of packets other than merely turning a device from "off" to "on," and prior to the sending of those signal bursts and subsequent statistical comparison of the traffic, *Schenkel* assumes that the source and destination devices are already both "on" or "powered."

Because neither *Chang* nor *Schenkel* describe how the mere powering on or off of a device as described in *Chang* can result in the determination of whether devices are connected as taught in *Schenkel*, the Applicant respectfully submits that Claims 12, 28, and 39 are allowable over the cited art and are in condition for allowance.

C. CLAIMS 2-5, 7-8, 11, 13-15, 21-26, 32-37, 42-43, 46-51, 54-59, AND 60-68

Claims 2-5 and 58-60 are dependent upon Claim 1, Claims 7-8, 11, and 63 are dependent upon Claim 6, Claims 13-15 and 66 are dependent upon Claim 12, Claims 21-26 and

61 are dependent upon Claim 20, Claims 32-37 and 62 are dependent upon Claim 31, Claims 42-43, 46, and 64 are dependent upon Claim 27, Claims 47-49 and 67 are dependent upon Claim 28, Claims 50-51, 54, and 65 are dependent upon Claim 38, and Claims 55-57 and 68 are dependent upon Claim 39.

Thus, each of Claims 2-5, 7-8, 11, 13-15, 21-26, 32-37, 42-43, 46-51, 54-59, and 60-68 include each and every feature of the corresponding independent claims. Therefore, the Applicant respectfully submits that each of Claims 2-5, 7-8, 11, 13-15, 21-26, 32-37, 42-43, 46-51, 54-59, and 60-68 is therefore allowable for the reasons given above for the Claims 1, 6, 12, 20, 31, 27-28, and 38-39. In addition, each of Claims 2-5, 7-8, 11, 13-15, 21-26, 32-37, 42-43, 46-51, 54-59, and 60-68 introduces one or more additional limitations that independently render it patentable. Some of these additional features of the dependent claims are addressed below, while a full discussion of each dependent claim is not included herein at this time based on the fundamental differences already identified herein.

1. Claims 60-68

Claims 60-68 have been rejected under 35 U.S.C. § 112(1) as allegedly not being supported in the specification.

i) Claims 60-62

Claims 60-62 each feature that "when the power state of the first network device is the unpowered state, the first network device is not able to receive one or more packets over the network" and "when the power state of the first network device is the powered state, the first network device is able to receive one or more packets over the network."

In reference to Claims 60-68, the Final Office Action stated, "The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably

convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention." However, MPEP § 2163.05 states that "each claim limitation must be expressly, **implicitly, or inherently** supported in the originally filed disclosure" (emphasis added).

It is respectfully submitted that Claims 60-62 are at least implicitly or inherently fully supported by the Application, and no new matter is included. For example, the two portions of the Application provided and discussed above (e.g., under section VII(A)(5)) use the terms "unpowered" and "powered," and both terms are distinguished from other terms, such as "standby" and "active" as well as "on" and "off." Furthermore, the term "unpowered" on its face means having "a lack of power," while "powered" means having "power."

In the context of network devices, one of ordinary skill in the art would understand that a network device in the "unpowered" state would mean that the network device is not able to receive network traffic in the form of packets in a packet-based network such as the worldwide packet-based network known as the Internet. (Application, page 32, lines 5-6.) Conversely, one of ordinary skill in the art would understand that a network device in the "powered" state would mean that the network device is able to receive network traffic in the form of packets in a packet-based network such as the Internet.

The Final Office Action's rejections are based on *Schenkel's* disclosure of sending of a signal in the form of a burst of packets (or sequential bursts of packets) from a source device to a destination device, which the Final Office Action alleges is the same as changing the power state of a device from unpowered to powered. However, as defined in Claims 60-62, "the first network device being in the unpowered state means that the first network device is not able to receive one or more packets over the network." Thus, in the approach of Claims 60-62, the first network device cannot change from the unpowered state to the powered state based on sending

a signal of a burst of packets because, by definition, the first device being unpowered means that the first device cannot receive packets. Thus, because Claims 60-62 directly contradict the approach of *Schenkel*, the Applicant respectfully submits that Claims 60-62 are allowable and are in condition for allowance.

ii) Claims 63-65 and 66-68

Claims 63-65 each feature "when the particular network device is not supplied with power, the particular network device is not able to receive one or more packets over the network" and "when the particular network device is supplied with power, the particular network device is able to receive one or more packets over the network," which is similar to Claims 60-62. Likewise, Claims 66-68 each feature "when the power state of the first network device is unpowered, the first network device is not able to receive one or more packets over the network" and "when the power state of the first network device is powered, the first network device is able to receive one or more packets over the network," which is also similar to Claims 60-62. Therefore, the Applicant respectfully submits that Claims 63-65 and 66-68 are each allowable for the same reasons as given above for Claims 60-62.

2. *Claims 3, 22, and 33*

Claims 3, 22, and 33 each features "determining whether a state of a port of the terminal server is changed from dead to active in response to changing the power state of the first network device." As a preliminary matter, there appears to be a typographical omission in the citations for Claims 3, 22, and 33 in the Final Office Action that begins by referring to "column 30 –37" since it is unclear what column and line numbers are being referred to.

The Final Office Action cites Col. 2, line 65 – Col. 3, line 7, of *Schenkel* as disclosing a terminal server, yet the Applicant does not see a terminal server listed or described. The word

"terminal" does not even appear in that passage, and the only occurrence of the word "server" is in referring to "file servers," which clearly are not terminal servers. An electronic search of *Schenkel* has failed to find any other reference to a "terminal server," nor has the Applicant been able to find any other type of device within *Schenkel* that functions as a terminal server.

Next, while Col. 6, lines 30-35, lines 55-56, and Col. 27, lines 55-62, of *Schenkel* all refer to a "port," there is nothing in those cited portions or any other that the Applicant has found about the port being part of a terminal server. Furthermore, there is nothing in those cited portions of *Schenkel* about the state of the port changing from dead to active as in Claims 3, 22, and 33, little less that such a change in state is in response to changing the power state of the first network device, as in Claim 1. While the last citation refers to "port level of activity," it is in the context of receiving a burst, which means non-zero activity, and thus does not disclose anything about the port being dead.

Because *Schenkel* fails to disclose, teach, suggest, or in any way render obvious either "determining whether a state of a port of the terminal server is changed from dead to active in response to changing the power state of the first network device," the Applicant respectfully submits that, for at least the reasons stated above, Claims 3, 22, and 33 is allowable over *Schenkel* and are in condition for allowance.

3. Claims 13, 47, and 55

Claims 13, 47, and 55 each features the use of a "power controller that changes the power state of the first network device from unpowered to powered." The Final Office Action cites *Singh* as disclosing a power controller that "powers up connected computers and other peripheral devices," which the Applicant does not presently dispute. The Office Action then states that the motivation to combine *Schenkel* and *Kracht* with *Singh* is that "Singh's use of a

power controller in Schenkel et al-Kracht's system would allow for discovery of devices by using a power controller to power up the first device and all other devices attached to the first device and then creating and storing information regarding the devices that are powered up due to the power controller." Yet the Final Office Action continues to rely on the previously discussed portions of *Schenkel* above as disclosing all the features of Claims 12, 28, and 39 from which Claims 13, 47, and 55 depend, respectively.

However, in *Schenkel's* approach, the determination of connections between devices is based on a statistical comparison of the traffic of the signal bursts between source and destination devices, which is independent of a power controller changing the power state of the first network device from unpowered to powered as in Claims 13, 47, and 55. Thus, it is not clear to the Applicant how the use of *Singh's* power controller can be incorporated into the approach of *Schenkel* without changing the principal of operation used by *Schenkel* to determine connections (e.g., the statistical comparison of network traffic).

Furthermore, according to MPEP §2143.01(VI), if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. Even if the approach of *Schenkel* were modified to include the power controller of *Singh*, the use of a power controller would have no role in the connection detection approach of *Schenkel* unless the approach of *Schenkel* were modified to detect network connections based solely on powering on or off a device. But such a modification of the approach of *Schenkel* would change the principal of *Schenkel's* operation from a statistical comparison of network traffic sent from a source device to a destination device to merely detecting whether a connection is powered or not powered. Thus, in this situation, since the

principle of *Schenkel's* operation is changed, *Schenkel* cannot properly be combined with *Singh* according to MPEP §2143.01(VI).

Finally, the Final Office Action's motivation to combine *Schenkel* and *Kracht* with *Singh* is that "Singh's use of a power controller in Schenkel et al-Kracht's system would allow for discovery of devices by using a power controller to power up the first device and all other devices attached to the first device and then creating and storing information regarding the devices that are powered up due to the power controller." However, the Applicant respectfully submits that there is nothing in any of *Schenkel*, *Kracht*, or *Singh* that teaches or suggests combining their respective teachings.

As stated in the Federal Circuit decision *In re Dembiczak*, 50 USPQ.2d 1617 (Fed. Cir. 1999), (citing *Gore v. Garlock*, 220 USPQ 303, 313 (Fed. Cir. 1983)), "it is very easy to fall victim to the insidious effect of the hindsight syndrome where that which only the inventor taught is used against its teacher." *Id.* The Federal Circuit stated in *Dembiczak* "that the best defense against subtle but powerful attraction of a hindsight-based obviousness analysis is ***rigorous application*** of the requirement for a showing of the teaching or suggestion to combine prior art references." *Id.* (emphasis added). Thus, the Federal Circuit explains that a proper obviousness analysis requires "***particular factual findings*** regarding the locus of the suggestion, teaching, or motivation to combine prior art references." *Id.* (emphasis added).

In particular, the Federal Circuit states:

> "We have noted that evidence of a suggestion, teaching, or motivation to combine may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved...although 'the suggestion more often comes from the teachings of the pertinent references'...The range of sources available, however, ***does*** **not** ***diminish the requirement for actual evidence***. That is, the ***showing*** **must be** ***clear and particular***...Broad conclusory statements regarding the teaching of multiple references, standing alone, are not 'evidence.'" *Id.* (emphasis added; internal citations omitted).

Schenkel, *Kracht*, or *Singh* lack any suggestion, teaching, or motivation to combine their teachings. The Final Office Action lacks a "clear and particular" showing of the suggestion, teaching, or motivation to combine their teachings. In fact, the only motivation provided in the Final Office Action is the hindsight observation that by combining features of those references, one may achieve the benefits achieved from the invention as described and claimed in the application. It is respectfully submitted that such a hindsight observation is not consistent with the Federal Circuit's requirement for "particular factual findings."

Therefore, because neither *Schenkel* nor *Singh*, either alone or in combination, disclose, teach, suggest, or in any way render obvious the combination of the use of a "power controller that changes the power state of the first network device from unpowered to powered" and "identifying whether an alteration occurs at the second network device in response to changing the power state of the first network device," the Applicant respectfully submits that, for at least the reasons stated above, Claims 13, 47, and 55 is allowable over *Schenkel* and are in condition for allowance.

Furthermore, because the combination of *Schenkel* and *Singh* would change the principle of operation of the approach of *Schenkel*, the Applicant respectfully submits that *Singh* cannot be properly combined with *Schenkel* and *Kracht*, per MPEP §2143.01(VI). Finally, because the only motivation provided in the Final Office Action is the hindsight observation that by combining features of those references, one may achieve the benefits achieved from the invention as described and claimed in the application, the Applicant respectfully submits that *Singh* cannot be properly combined with *Schenkel* and *Kracht* due to the lack of any "particular factual findings" as required by the Federal Circuit.

D. CONCLUSION AND PRAYER FOR RELIEF

Based on the foregoing, it is respectfully submitted that the rejection of Claims 1-8, 11-16, 20-29, 31-40, 42-43, 46-51, and 54-68 under 35 U.S.C. § 103(a) being unpatentable over the cited art lacks the requisite factual and legal bases. Appellants therefore respectfully request that the Honorable Board reverse the rejection of Claims 1-8, 11-16, 20-29, 31-40, 42-43, 46-51, and 54-68 under 35 U.S.C. § 103(a).

Respectfully submitted,
HICKMAN PALERMO TRUONG & BECKER LLP

Daniel Ledesma

Daniel D. Ledesma
Reg. No. 57,181

Date: February 14, 2007
2055 Gateway Place, Suite 550
San Jose, CA 95110-1089
Telephone: (408) 414-1229
Facsimile: (408) 414-1076

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on February 14, 2007 by Darci Sakamoto
Darci Sakamoto

VIII. CLAIMS APPENDIX

1. (Previously Presented) A method for determining one or more logical interconnections among a plurality of network devices that are interconnected in a network in an indefinite relationship, wherein a power state is associated with a first network device, the method comprising the computer-implemented steps of:

changing the power state of the first network device from either (a) an unpowered state to a powered state or (b) from the powered state to the unpowered state;

identifying whether an alteration occurs at a second network device in response to changing the power state of the first network device; and

when the alteration occurs at the second network device, creating and storing first information representing a logical connection of the first network device to the second network device.

2. (Original) The method as recited in Claim 1, further comprising the steps of:

retrieving second information from a database, wherein the second information represents one or more logical connections of the first network device to the second network device;

comparing the second information from the database with the first information; and

generating an error if the second information indicates that a logical connection exists between the first and second network devices but the first information does not indicate that the logical connection exists between the first and second network devices.

3. (Original) The method as recited in Claim 1, wherein the second network device is a terminal server and wherein the step of identifying whether the alteration occurs at the terminal server further comprises:

determining whether a state of a port of the terminal server is changed from dead to active in response to changing the power state of the first network device.

4. (Original) The method as recited in Claim 1, wherein the second network device is a switch and wherein the step of identifying whether the alteration occurs at the switch further comprises:

determining whether a trap on a port of the switch is raised in response to changing the power state of the first network device.

5. (Original) The method as recited in Claim 1, further comprising:

receiving, in response to changing the power state of the first network device, additional information from the first network device; and

recording the additional information.

6. (Previously Presented) A method for determining one or more logical interconnections among a set of specified network devices that are interconnected in a network in an indefinite relationship, the method comprising the steps of:

(1) establishing connections among a plurality of network devices based upon a set of rules;

(2) activating a particular network device of said set of specified network devices by supplying power to the particular network device that previously was not supplied with power;

(3) identifying whether, in response to activating the particular network device, a change occurs at one or more network devices of said plurality of network devices;

(4) when the change occurs at each of the one or more network devices, creating and storing information representing a logical connection of the particular network device to each of the one or more network devices; and

(5) repeating steps (2), (3), and (4) for each of said set of specified network devices.

7. (Original) The method as recited in Claim 6, wherein the set of rules are applied based upon one or more attributes of each connection.

8. (Previously Presented) The method as recited in Claim 7, wherein the one or more attributes of each connection include information that is selected from the group consisting of a type of connection between two or more network devices, the number of connections between a specific network device and one or more other network devices, and that a particular connection is between a first type of network device and a second type of network device.

9.-10. (Cancelled)

11. (Previously Presented) The method as recited in Claim 6, wherein the step of identifying whether the change occurs at one or more network devices further comprises:

determining whether a trap on a port of each of the one or more network devices is raised in response to activating the particular network device by supplying power to the particular network device that previously was not supplied with power.

12. (Previously Presented) A method for determining how devices are interconnected in a network, the method comprising the computer-implemented steps of:

sending a signal from a control device that results in a change in a power state of a first network device in response to the signal, wherein the power state changes from either powered to unpowered or from unpowered to powered;

determining whether the first network device is connected to a second network device by identifying an alteration at the second network device that occurs in response to changing the power state of the first network device; and

when the alteration occurs at the second network device, creating and storing information representing that the first network device is connected to the second network device.

13. (Previously Presented) The method as recited in Claim 12 wherein the first network device is connected to a power controller and wherein the signal from the control device is sent to the power controller that changes the power state of the first network device from unpowered to powered.

14. (Previously Presented) The method as recited in Claim 12, wherein the second network device is a terminal server and wherein identifying the alteration at the terminal server includes determining whether a state of a port of the terminal server is changed from dead to active in response to changing the power state of the first network device from unpowered to powered.

15. (Previously Presented) The method as recited in Claim 12, wherein the second network device is a switch and wherein identifying the alteration at the switch includes determining whether a trap on a port of the switch is raised in response to changing the power state of the first network device from unpowered to powered.

16. (Previously Presented) A method for determining how devices are interconnected in a network, the method comprising the computer-implemented steps of:

power cycling a first network device from either "off" to "on" or from "on" to "off";

identifying whether a suspected link of the first network device and a second network device becomes active as a result of power cycling of the first network device; and

when the suspected link become active, creating and storing information representing that the first network device is connected to the second network device.

17.-19. (Cancelled)

20. (Previously Presented) A computer-readable medium carrying one or more sequences of instructions for determining one or more logical interconnections among a plurality of network devices that are interconnected in a network in an indefinite relationship,

wherein a power state is associated with a first network device, which instructions, when executed by one or more processors, cause the one or more processors to carry out the steps of:

changing the power state of the first network device from either (a) an unpowered state to a powered state or (b) from the powered state to the unpowered state;

identifying whether an alteration occurs at a second network device in response to changing the power state of the first network device; and

when the alteration occurs at the second network device, creating and storing first information representing a logical connection of the first network device to the second network device.

21. (Original) The computer-readable medium as recited in Claim 20, further comprising instructions which, when executed by one or more processors, cause the one or more processors to carry out the steps of:

retrieving second information from a database, wherein the second information represents one or more logical connections of the first network device to the second network device;

comparing the second information from the database with the first information; and

generating an error if the second information indicates that a logical connection exists between the first and second network devices but the first information does not indicate that the logical connection exists between the first and second network devices.

22. (Original) The computer-readable medium as recited in Claim 20, wherein the second network device is a terminal server and wherein the step of identifying whether the alteration occurs at the terminal server further comprises instructions which, when executed by one or more processors, cause the one or more processors to carry out the step of:

determining whether a state of a port of the terminal server is changed from dead to active in response to changing the power state of the first network device.

23. (Original) The computer-readable medium as recited in Claim 20, wherein the second network device is a switch and wherein the step of identifying whether the alteration occurs at the switch further comprises instructions which, when executed by one or more processors, cause the one or more processors to carry out the step of:
determining whether a trap on a port of the switch is raised in response to changing the power state of the first network device.

24. (Original) The computer-readable medium as recited in Claim 20, further comprising instructions which, when executed by one or more processors, cause the one or more processors to carry out the steps of:
receiving, in response to changing the power state of the first network device, additional information from the first network device; and
recording the additional information.

25. (Original) The computer-readable medium as recited in Claim 20, wherein changing the power state of the first network device is in response to a signal from a third network device.

26. (Original) The computer-readable medium as recited in Claim 25, wherein the first network device is connected to a power controller and wherein the signal from the third network device is sent to the power controller that changes the power state of the first network device.

27. (Previously Presented) A computer-readable medium carrying one or more sequences of instructions for determining one or more logical interconnections among a set of specified network devices that are interconnected in a network in an indefinite relationship, which instructions, when executed by one or more processors, cause the one or more processors to carry out the steps of:

(1) establishing connections among a plurality of network devices based upon a set of rules;

(2) activating a particular network device of said set of specified network devices by supplying power to the particular network device that previously was not supplied with power;

(3) identifying whether, in response to activating the particular network device, a change occurs at one or more network devices of said plurality of network devices;

(4) when the change occurs at each of the one or more network devices, creating and storing information representing a logical connection of the particular network device to each of the one or more network devices; and

(5) repeating steps (2), (3), and (4) for each of said set of specified network devices.

28. (Previously Presented) A computer-readable medium carrying one or more sequences of instructions for determining how devices are interconnected in a network, which instructions, when executed by one or more processors, cause the one or more processors to carry out the steps of:

sending a signal from a control device that results in a change in a power state of a first network device in response to the signal, wherein the power state changes from either powered to unpowered or from unpowered to powered;

determining whether the first network device is connected to a second network device by identifying an alteration at the second network device that occurs in response to changing the power state of the first network device; and

when the alteration occurs at the second network device, creating and storing information representing that the first network device is connected to the second network device.

29. (Previously Presented) A computer-readable medium carrying one or more sequences of instructions for determining how devices are interconnected in a network, which instructions, when executed by one or more processors, cause the one or more processors to carry out the steps of:

power cycling a first network device from either "off" to "on" or from "on" to "off";

identifying whether a suspected link of the first network device and a second network device becomes active as a result of power cycling of the first network device; and

when the suspected link become active, creating and storing information representing that the first network device is connected to the second network device.

30. (Cancelled)

31. (Previously Presented) An apparatus for determining one or more logical interconnections among a plurality of network devices that are interconnected in a network in an indefinite relationship, wherein a power state is associated with a first network device, the apparatus comprising:

a means for changing the power state of the first network device from either (a) an unpowered state to a powered state or (b) from the powered state to the unpowered state;

a means for identifying whether an alteration occurs at a second network device in response to changing the power state of the first network device; and

a means for creating and storing first information representing a logical connection of the first network device to the second network device, when the alteration occurs at the second network device.

32. (Original) The apparatus as recited in Claim 31, further comprising:

a means for retrieving second information from a database, wherein the second information represents one or more logical connections of the first network device to the second network device;

a means for comparing the second information from the database with the first information; and

a means for generating an error if the second information indicates that a logical connection exists between the first and second network devices but the first information does not indicate that the logical connection exists between the first and second network devices.

33. (Original) The apparatus as recited in Claim 31, wherein the second network device is a terminal server and wherein the means for identifying whether the alteration occurs at the terminal server further comprises:

a means for determining whether a state of a port of the terminal server is changed from dead to active in response to changing the power state of the first network device.

34. (Original) The apparatus as recited in Claim 31, wherein the second network device is a switch and wherein the means for of identifying whether the alteration occurs at the switch further comprises:

a means for determining whether a trap on a port of the switch is raised in response to changing the power state of the first network device.

35. (Original) The apparatus as recited in Claim 31, further comprising:

a means for receiving, in response to changing the power state of the first network device, additional information from the first network device; and

a means for recording the additional information.

36. (Original) The apparatus as recited in Claim 31, wherein changing the power state of the first network device is in response to a signal from a third network device.

37. (Original) The apparatus as recited in Claim 36, wherein the first network device is connected to a power controller and wherein the signal from the third network device is sent to the power controller that changes the power state of the first network device.

38. (Previously Presented) An apparatus for determining one or more logical interconnections among a set of specified network devices that are interconnected in a network in an indefinite relationship, the apparatus comprising:

(1) a means for establishing connections among a plurality of network devices based upon a set of rules;

(2) a means for activating a particular network device of said set of specified network devices by supplying power to the particular network device that previously was not supplied with power;

(3) a means for identifying whether, in response to activating the particular network device, a change occurs at one or more network devices of said plurality of network devices;

(4) a means for creating and storing information representing a logical connection of the particular network device to each of the one or more network devices, when the change occurs at each of the one or more network devices; and

(5) a means for repeating steps (2), (3), and (4) for each of said set of specified network devices.

39. (Previously Presented) An apparatus for determining how devices are interconnected in a network, the apparatus comprising:

a means for sending a signal from a control device that results in a change in a power state of a first network device in response to the signal, wherein the power state changes from either powered to unpowered or from unpowered to powered;

a means for determining whether the first network device is connected to a second network device by identifying an alteration at the second network device that occurs in response to changing the power state of the first network device; and

a means for creating and storing information representing that the first network device is connected to the second network device, when the alteration occurs at the second network device.

40. (Previously Presented) An apparatus for determining how devices are interconnected in a network, the apparatus comprising:

a means for power cycling a first network device from either "off" to "on" or from "on" to "off";

a means for identifying whether a suspected link of the first network device and a second network device becomes active as a result of power cycling of the first network device; and

a means for creating and storing information representing that the first network device is connected to the second network device, when the suspected link become active.

41. (Cancelled)

42. (Previously Presented) The computer-readable medium as recited in Claim 27, wherein the set of rules are applied based upon one or more attributes of each connection.

43. (Previously Presented) The computer-readable medium as recited in Claim 42, wherein the one or more attributes of each connection include information that is selected from the group consisting of a type of connection between two or more network devices, the number of connections between a specific network device and one or more other network devices, and that a particular connection is between a first type of network device and a second type of network device.

44.-45. (Cancelled)

46. (Previously Presented) The computer-readable medium as recited in Claim 27, wherein the instruction for identifying whether the change occurs at one or more network devices further comprises instructions which, when executed by one or more processors, cause the one or more processors to carry out the step of:
determining whether a trap on a port of each of the one or more network devices is raised in response to activating the particular network device by supplying power to the particular network device that previously was not supplied with power.

47. (Previously Presented) The computer-readable medium as recited in Claim 28 wherein the first network device is connected to a power controller and wherein the signal from the control device is sent to the power controller that changes the power state of the first network device from unpowered to powered.

48. (Previously Presented) The computer-readable medium as recited in Claim 28, wherein the second network device is a terminal server and wherein identifying the alteration at the terminal server includes determining whether a state of a port of the terminal server is changed from dead to active in response to changing the power state of the first network device from unpowered to powered.

49. (Previously Presented) The computer-readable medium as recited in Claim 28, wherein the second network device is a switch and wherein identifying the alteration at the switch includes determining whether a trap on a port of the switch is raised in response to changing the power state of the first network device from unpowered to powered.

50. (Previously Presented) The apparatus as recited in Claim 38, wherein the set of rules are applied based upon one or more attributes of each connection.

51. (Previously Presented) The apparatus as recited in Claim 50, wherein the one or more attributes of each connection include information that is selected from the group consisting of a type of connection between two or more network devices, the number of connections between a specific network device and one or more other network devices, and that a particular connection is between a first type of network device and a second type of network device.

52.-53. (Cancelled)

54. (Previously Presented) The apparatus as recited in Claim 38, wherein the means for identifying whether the change occurs at one or more network devices further comprises:

means for determining whether a trap on a port of each of the one or more network devices is raised in response to activating the particular network device by supplying power to the particular network device that previously was not supplied with power.

55. (Previously Presented) The apparatus as recited in Claim 39 wherein the first network device is connected to a power controller and wherein the signal from the control device is sent to the power controller that changes the power state of the first network device from unpowered to powered.

56. (Previously Presented) The apparatus as recited in Claim 39, wherein the second network device is a terminal server and wherein identifying the alteration at the terminal server includes determining whether a state of a port of the terminal server is changed from dead to active in response to changing the power state of the first network device from unpowered to powered.

57. (Previously Presented) The apparatus as recited in Claim 39, wherein the second network device is a switch and wherein identifying the alteration at the switch includes determining whether a trap on a port of the switch is raised in response to changing the power state of the first network device from unpowered to powered.

58. (Previously Presented) The method as recited in Claim 1, wherein changing the power state of the first network device is in response to a signal from a third network device.

59. (Previously Presented) The method as recited in Claim 58, wherein the first network device is connected to a power controller and wherein the signal from the third network device is sent to the power controller that changes the power state of the first network device.

60. (Previously Presented) The method as recited in Claim 1, wherein:

when the power state of the first network device is the unpowered state, the first network device is not able to receive one or more packets over the network; and

when the power state of the first network device is the powered state, the first network device is able to receive one or more packets over the network.

61. (Previously Presented) The computer-readable medium as recited in Claim 20, wherein:

when the power state of the first network device is the unpowered state, the first network device is not able to receive one or more packets over the network; and

when the power state of the first network device is the powered state, the first network device is able to receive one or more packets over the network.

62. (Previously Presented) The apparatus as recited in Claim 31, wherein:

when the power state of the first network device is the unpowered state, the first network device is not able to receive one or more packets over the network; and

when the power state of the first network device is the powered state, the first network device is able to receive one or more packets over the network.

63. (Previously Presented) The method as recited in Claim 6, wherein:

when the particular network device is not supplied with power, the particular network device is not able to receive one or more packets over the network; and

when the particular network device is supplied with power, the particular network device is able to receive one or more packets over the network.

64. (Previously Presented) The computer-readable medium as recited in Claim 27, wherein:

when the particular network device is not supplied with power, the particular network device is not able to receive one or more packets over the network; and

when the particular network device is supplied with power, the particular network device is able to receive one or more packets over the network.

65. (Previously Presented) The apparatus as recited in Claim 38, wherein:

when the particular network device is not supplied with power, the particular network device is not able to receive one or more packets over the network; and

when the particular network device is supplied with power, the particular network device is able to receive one or more packets over the network.

66. (Previously Presented) The method as recited in Claim 12, wherein:
when the power state of the first network device is unpowered, the first network device is not able to receive one or more packets over the network; and
when the power state of the first network device is powered, the first network device is able to receive one or more packets over the network.

67. (Previously Presented) The computer-readable medium as recited in Claim 28, wherein:
when the power state of the first network device is unpowered, the first network device is not able to receive one or more packets over the network; and
when the power state of the first network device is powered, the first network device is able to receive one or more packets over the network.

68. (Previously Presented) The apparatus as recited in Claim 39, wherein:
when the power state of the first network device is unpowered, the first network device is not able to receive one or more packets over the network; and
when the power state of the first network device is powered, the first network device is able to receive one or more packets over the network.

IX. EVIDENCE APPENDIX PAGE

None.

X. RELATED PROCEEDINGS APPENDIX PAGE

None.